VIII. CONSERVATION PLAN ELEMENT

A. Introduction

A Conservation Plan Element provides for the preservation, conservation, and utilization of natural resources, including, to the extent appropriate, energy, open space, water supply, forests, soil, marshes, wetlands, harbors, rivers and other waters, fisheries, endangered or threatened species wildlife and other resources, and which systemically analyzes the impact of each other component and element of the master plan on the present and future preservation, conservation and utilization of those resources.

The Municipal Land Use Law (N.J.S.A. 40:55D-2) cites a number of legislative purposes that are related to environmental conservation:

- a. To encourage municipal action to guide the appropriate use or development of all lands in this State, in a manner which will promote the public health, safety, morals, and general welfare;
- b. To secure safety from fire, flood, panic and other natural and man-made disasters;
- c. To provide adequate light, air and open space;
- d. To ensure that the development of individual municipalities does not conflict with the development and general welfare of neighboring municipalities, the county and the State as a whole;
- e. To promote the establishment of appropriate population densities and concentrations that will contribute to the well-being of persons, neighborhoods, communities and regions and preservation of the environment;
- g. To provide sufficient space in appropriate locations for a variety of agricultural, residential, recreational, commercial and industrial uses and open space, both public and private, according to their respective environmental requirements in order to meet the needs of all New Jersey citizens;
- i. To promote a desirable visual environment through creative development techniques and good civic design and arrangement;
- j. To promote the conservation of historic sites and districts, open space, energy resources and valuable natural resources in the State and to prevent urban sprawl and degradation of the environment through improper use of land;
- n. To promote utilization of renewable energy resources;

- o. To promote the maximum practicable recovery and recycling of recyclable materials from municipal solid waste through the use of planning practices designed to incorporate the State Recycling Plan goals and to complement municipal recycling programs; and
- p. To enable municipalities the flexibility to offer alternatives to traditional development, through the use of equitable and effective planning tools including clustering, transferring development rights, and lot-size averaging in order to concentrate development in areas where growth can best be accommodated and maximized while preserving agricultural lands, open space, and historic sites.

In addition, the State Strategic Plan: New Jersey's State Development and Redevelopment Plan (The SDRP), provides four major goals, including one that clearly recognizes the importance of conservation:

Goal 3: Preservation and Enhancement of Critical State Resources:

Ensure that strategies for growth include preservation of our State's critical natural, agricultural, scenic, recreation, and historic resources, recognizing the role they plan in sustaining and improving the quality of life for New Jersey residents and attracting economic growth.

Preservation and enhancement of critical state resources includes:

- Conserving the State's Natural Resources and Systems
- Protecting the Environment, Preventing and Cleaning Up Pollution
- Preserving and Enhancing Areas with Historic, Cultural, Scenic, Open Space and Recreational Value
- Ensuring Sound and Integrated Planning and Implementation Statewide

B. Inventory of Natural Resource Areas

Florence Township is fortunate to have a wide variety of natural areas within its borders. This section identifies those natural resources in narrative and map formats.

1. Waterways

As shown on Figure VIII-1. USGS Map, Figure VIII-2. Head of Tide Map, and Figure VIII-3. FEMA (Flood Emergency Management Agency) Map, Florence Township contains several waterways, the largest of which is the Delaware River. The Delaware River borders and forms the northern boundary of the Township.

Crafts Creek is situated along the northeastern side of the Township and is a tidal tributary of the Delaware River. The head of tide of the creek is south of Heather Lane. At the northern end of the Township, the Creek is wide and ultimately narrows in size in the vicinity of U.S. Route 130. The creek is non-tidal from Old York Road along the Township boundary until

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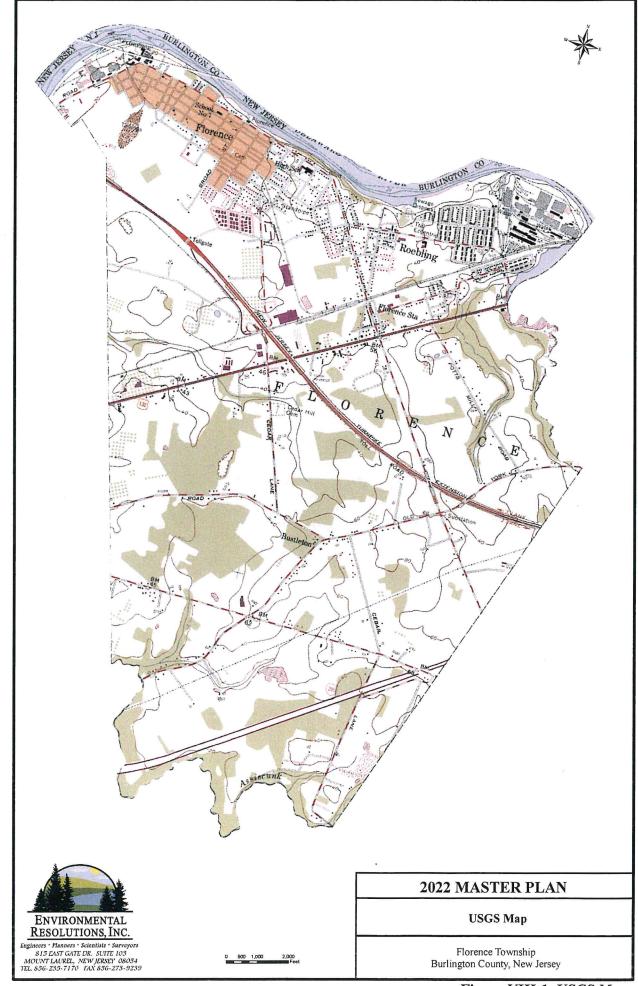


Figure VIII-1. USGS Map

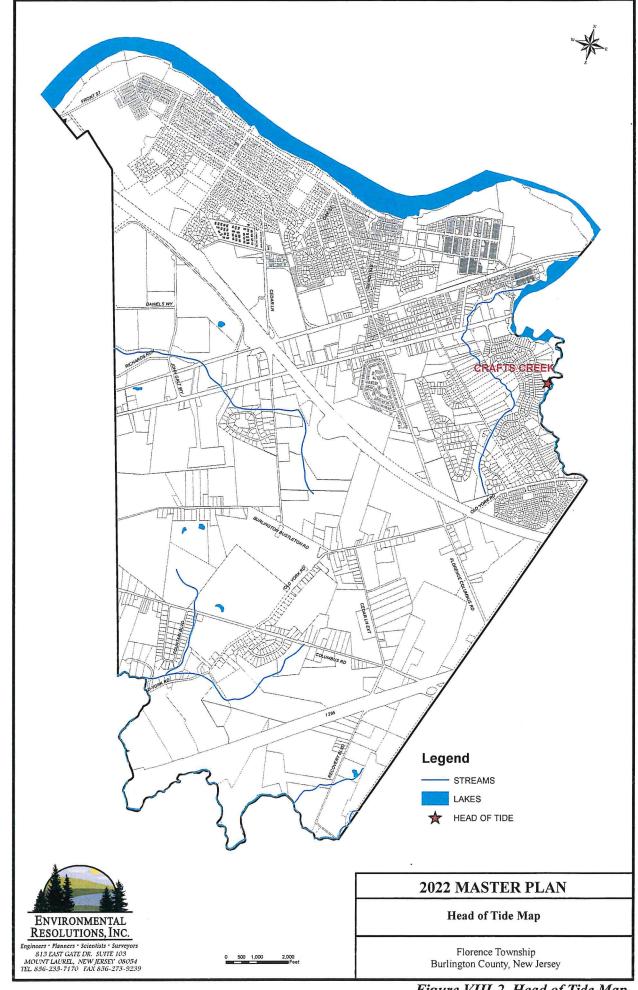


Figure VIII-2. Head of Tide Map

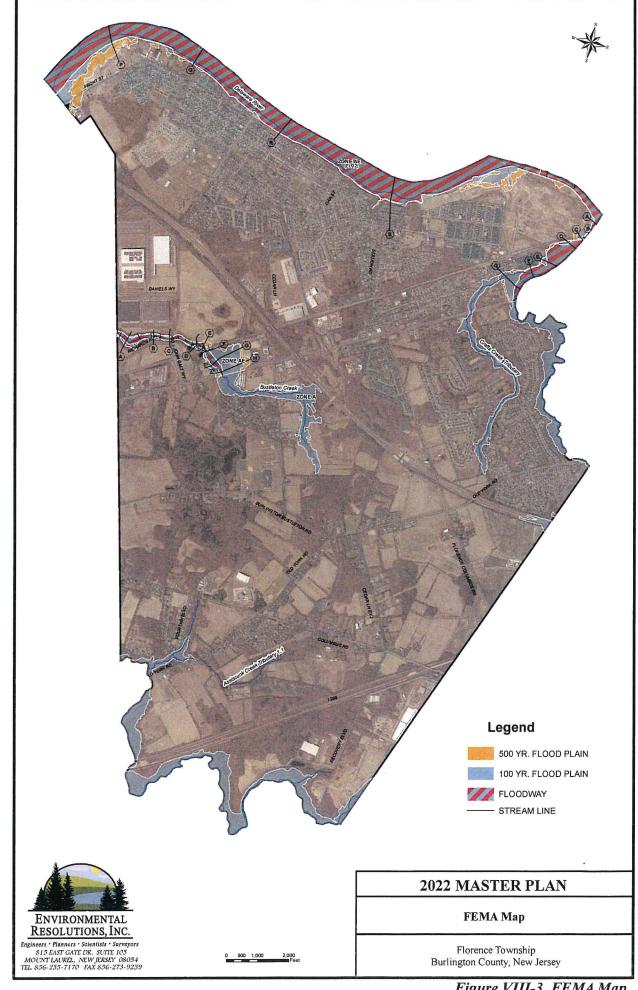


Figure VIII-3. FEMA Map

the point where it becomes tidal. A somewhat parallel but separate stream referred to as English's Creek (aka Crafts Creek) begins just north of Old York Road, crosses Potts Mill Road as it flow northeastward, and crosses U.S. Route 130 to meet Crafts Creek in the vicinity of the Camden to Amboy Railroad. From there, it flows to the Delaware River.

Assiscunk Creek is situated along and forms the southern boundary of the Township with Springfield Township. There are two other tributaries of Assiscunk Creek that begin in the southern portion of the Township, flowing westward to the Township boundary with Burlington Township.

Bustleton Creek forms on the eastern side of Cedar Lane, flows in a northwestern direction, crosses Cedar Lane, flows in a western direction and crosses U.S. Route 130 and the Camden to Amboy Railroad, and exits Florence Township into Burlington Township.

The New Jersey Department of Environmental Protection regulates activities in streams, the floodway, and the 100 year and 500 year floodplains under the Flood Hazard Area Control Act Rules, N.J.A.C. 7:13 et seq. In addition to regulating the waterways and floodplain, with a few exceptions, NJDEP regulates development within the riparian corridor or riparian zone along every regulated water. The riparian zone is defined as the land and vegetation within a regulated water and extending either 50 feet, 150 feet or 300 feet from the top of bank along both sides of the regulated water, depending on the environmental sensitivity of the water.

The vegetation adjacent to surface waters is essential for maintenance of bank stability and water quality. Disturbance of the vegetation leads to destabilization of the channels, erosion of banks, and sedimentation, all of which can increase the intensity and frequency of flooding. Loss of vegetation adjacent to surface waters also reduces filtration of stormwater runoff and degrades the quality of adjacent waters. Unless properly controlled, development within flood hazard areas can exacerbate the intensity and frequency of flooding by reducing flood storage, increasing stormwater runoff and obstructing the movement of floodwaters. Structures that are improperly built in flood hazard areas are subject to flood damage and threaten the health, safety, and welfare of those who use them.

2. NJDEP Freshwater Wetlands

Figure VIII-4. NJDEP Freshwater Wetlands Map shows areas of the Township mapped as Freshwater Wetlands. The northern portion of the Township, north of the Camden and Amboy Railroad contains a limited amount of wetlands, likely due to historical development prior to the time wetlands were regulated by the U.S. Army Corps of Engineers and the New Jersey Department of Environmental Protection (NJDEP). More extensive wetland areas are situated to the south of the railroad. Activities in freshwater wetlands in the Township are regulated under N.J.A.C. 7:7A Freshwater Wetlands Protection Act Rules. Not only are the wetlands protected and regulated, but a transition area or buffer of typically 50 or 150 is also protected in order to provide additional protection to the wetlands. In addition to NJDEP regulations, the U.S. Army Corps of Engineers regulates wetlands that are partially or entirely located within 1,000 feet of the ordinary high water mark or mean high tide.

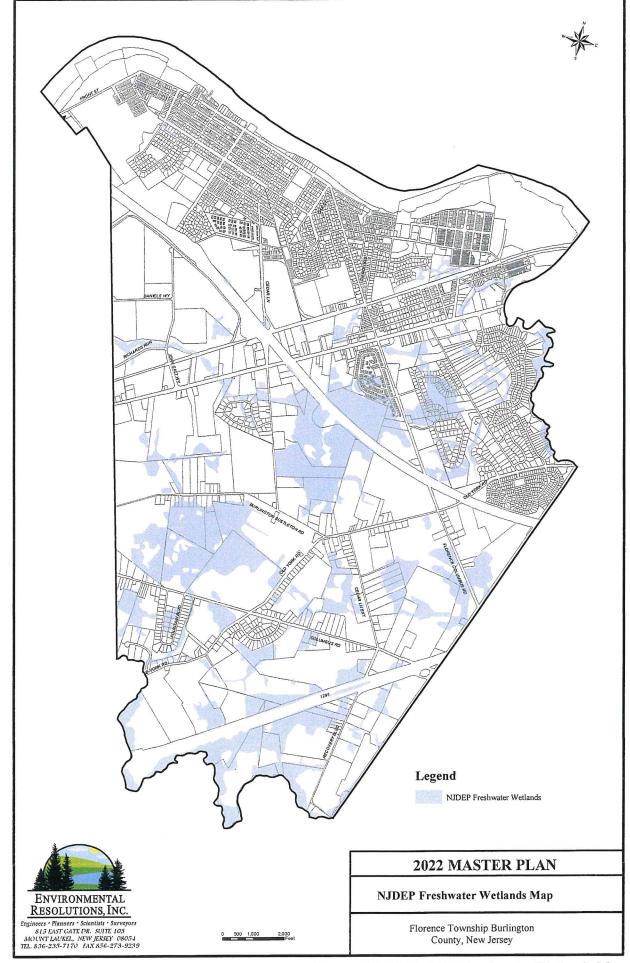


Figure VIII-4. NJDEP Freshwater Wetlands Map

The value of wetlands should not be underestimated, Wetlands are recognized for their vital ecological and socioeconomic contributions. Wetlands contribute to the social, economic, and environmental health of our nation in many ways:

- Wetlands protect drinking water by filtering out chemicals, pollutants, and sediments that would otherwise clog and contaminate our waters.
- Wetlands soak up runoff from heavy rains and snow melts, providing natural flood control. Wetlands release stored flood waters to streams during droughts.
- Wetlands provide critical habitats for a major portion of the State's fish and wildlife, including endangered, commercial and recreational species.
- Wetlands provide high quality open space for recreation and tourism.

3. NJDEP Tidal Wetlands Act of 1970 Wetlands

Figure VIII-5. NJDEP Tidal Wetlands Act of 1970 Wetlands Map shows the upper limit of the coastal wetlands line within Florence Township regulated pursuant to the Wetlands Act of 1970, N.J.S.A. 13:9A-1 et seq. The Act required the Commissioner of NJDEP to inventory and map the boundaries of all coastal wetlands within the State from the Raritan Bay south. In the early 1970s, the Department delineated areas which met the definition of "coastal wetland" per the Act. The Act enabled the Commissioner to adopt, amend, modify or repeal orders regulating, restricting or prohibiting dredging, filling, removing or otherwise altering, or polluting coastal wetlands for the purposes of promoting the public safety, health and welfare, and protecting public and private property, wildlife and marine fisheries.

4. Tidelands/Riparian Lands

Tidelands, also known as riparian lands, are all lands that are currently and formerly flowed by the mean high tide of a natural waterway. Tax maps of the Township properties adjacent to tidal waters may show a Riparian Grant, Lease or License, indicating that the upland property owner has obtained ownership or an interest in property that the State of New Jersey claimed ownership to and held them in trust for the residents of the State of New Jersey. Common uses of tidelands include docks, mooring pikes, bulkheads or other types of fill or structures. Public and private property owners are required to obtain a Grant, Lease or License to occupy lands currently or formerly flowed by the mean high water line. Maps showing these area are available from NJDEP.

5. Waterfront Development Lands

In this area of the State of New Jersey, activities in tidal waterways and lands lying there under, up to and including the mean high water line and adjacent upland areas within a minimum of 100 feet of the mean high water line are regulated by the Waterfront Development Law, requiring a permit be obtained from NJDEP. For properties within 100' of the mean high water line that extend inland beyond 100 feet from the mean high water line, the regulated waterfront area extends inland to the lesser distance of either 500 feet from the mean high water line or to

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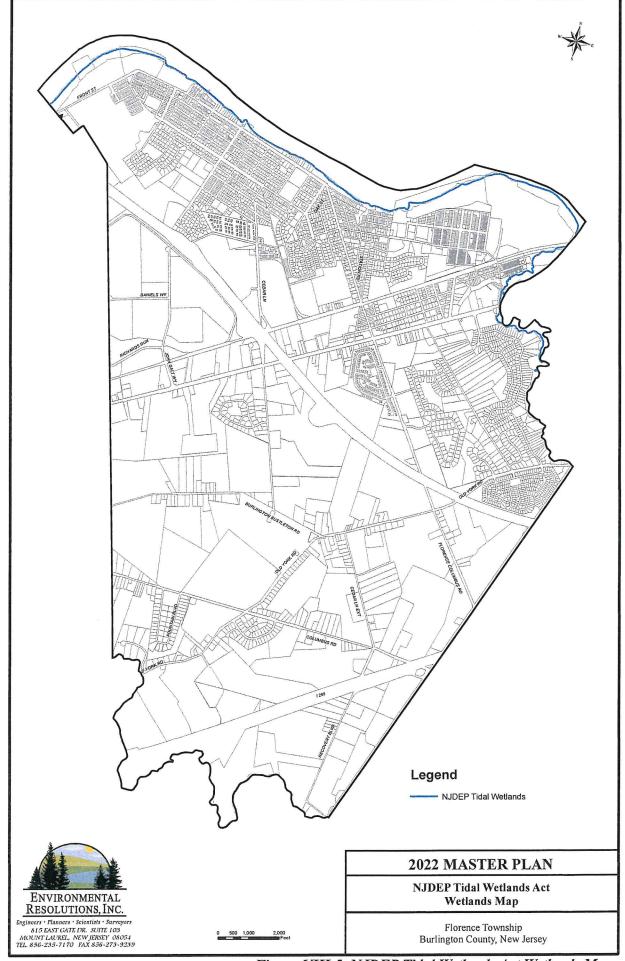


Figure VIII-5. NJDEP Tidal Wetlands Act Wetlands Map

the first paved public road, railroad, or surveyable property line that existed on September 26, 1980 and generally parallels the waterway. In addition to the Waterfront Development Permit, activities in water areas require one of the three forms of Tidelands/Riparian conveyances described above.

The Waterfront Development Permit process requires a review of a multitude of Special Areas to determine is a permit can be issues. The potential Special Areas include: Prime Fishing Areas, Finfish Migratory Pathways, Submerged Vegetation Habitat, Intertidal and Subtidal Shallows, Erosion Hazard Areas, Wetlands, Wetlands Buffers, Coastal Bluffs, Steep Slopes, Intermittent Stream Corridors, Specimen Trees, Endangered or Threatened Wildlife or Plant Species, Critical Wildlife Habitats and numerous others.

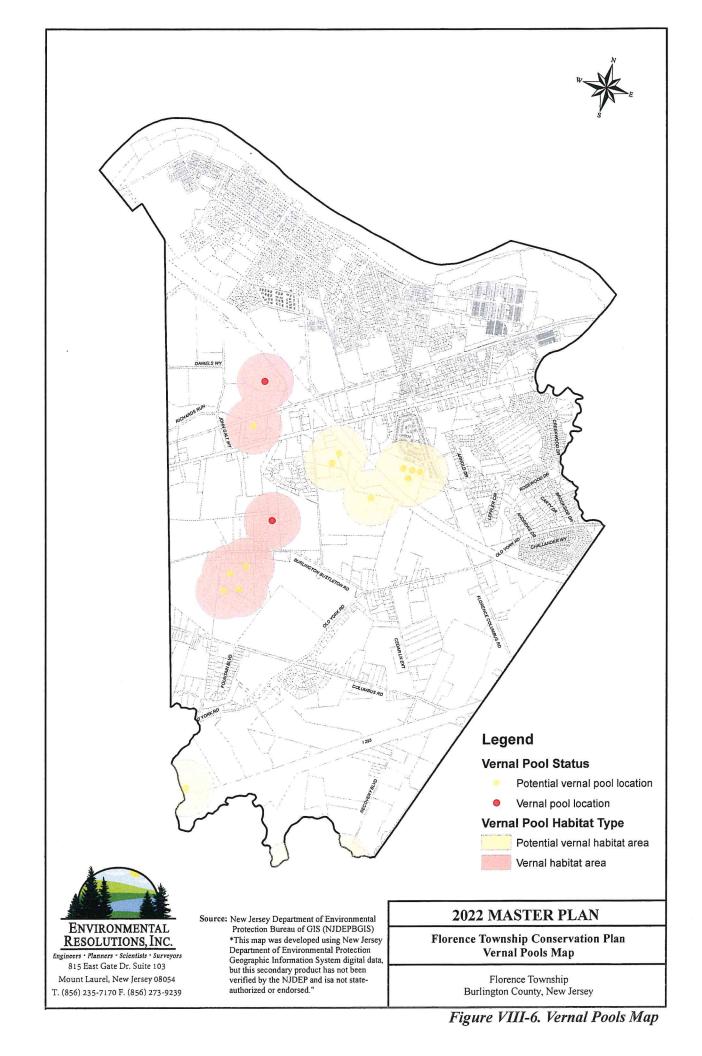
6. Vernal Pools

Figure VIII-6. Vernal Pools Map shows Potential Vernal Pool Locations, and Vernal Pool Locations in addition to Potential Vernal Habitat Areas and Vernal Habitat Areas. Vernal pools are confined depressions, either natural or man-made, that hold water for at least two consecutive months out of the year, and are devoid of breeding fish populations. Vernal pools provide habitat to many species of amphibians, insects, reptiles, plants, and other wildlife. The absence of fish is essential for vernal pools because of the highly predatory nature of fish on amphibian eggs and larvae. Over the course of evolution, several species of salamanders and frogs exploited these fish-less water bodies. Today, these species exhibit "hardwired" instincts and behaviors that are geared exclusively towards fish-free aquatic habitats. New Jersey regulations protect vernal pools that are known to meet the following criteria:

- Occurs in a confined basin depression without a permanently flowing outlet.
- Provides documented habitat for obligate or facultative vernal habitat species.
- Maintains ponded water for at least two continuous months between March and September of a normal rainfall year.
- Are free of fish populations throughout the year, or dries up at some time during a normal rainfall year.

Potential vernal habitat areas are identified as possibly containing a vernal pool that meets the criteria of a "vernal habitat" pursuant to N.J.A.C. 7:7A-1.4. These sites include sites that have been field inspected and have been found to meet the physical characteristics of a vernal habitat, but for which biological criteria have not yet been measured, as well as sites that have not been checked by NJDEP staff.

Vernal habitat areas contain pools that have been field verified by the NJDEP and have been determined to meet both the physical and biological characteristics of a vernal habitat in accordance with N.J.A.C. 7:7A-1.4. All areas mapped as "potential vernal habitat areas" and "vernal habitat areas" are derived from a point location estimated to be the center of an individual vernal pool and include all areas within 300 meters of the point.



The Landscape Project, the name of the project that identifies these areas and threatened and endangered species habitat was designed to provide users with peer reviewed, scientifically sound information that transparently documents threatened and endangered species habitat. Landscape Project data are easily accessible and can be integrated with the planning, protection and land management programs of non-government organizations and private landowners and at every level of federal, state, county and municipal government. Landscape maps and overlays provide a basis for proactive planning, such as the development of local habitat protection ordinances, zoning to protect critical wildlife areas, management guidelines for imperiled species conservation on public and private lands, and land acquisition projects.

Most importantly, the information that is readily available in the Landscape Project can be used for planning purposes before any actions occur such as proposed development, resource extraction (e.g. timber harvests) or conservation measures. The maps increase predictability for planners, environmental commissions, and developers and help facilitate local land use decisions that appropriately site and balance development and habitat protection. The Landscape Project maps allow the regulated public to anticipate potential environmental regulation in an area and provide some level of assurance regarding areas where endangered, threatened or species of special concern are not likely to occur, affording predictability to the application and development process. Landscape Project maps can be used proactively by regulators, planners and the regulated public in order to minimize conflicts and protect species. This minimizes time and money spent attempting to resolve after-the-fact endangered and threatened species issues.

7. Endangered Habitat Map

Figure VIII-7. Endangered Habitat Map shows a ranking of potential Endangered Habitat in the vicinity of a property. The map is prepared from the Landscape Project which combines documented wildlife locations with NJDEP aerial photo based 2012 Land Use/Land Cover (LULC) to delineate imperiled and special concern species habitat within New Jersey. Many species occurrence locations cannot be published because they may represent nest sites, roost sites, dens and other sites used by species that are vulnerable to human disturbance and, in some cases, susceptible to illegal collection. At the same time, wildlife moves, as individual animals use various habitat features within the landscape to fulfill their foraging, sheltering and breeding needs. Therefore, protecting individual occurrences or the area used by one individual is generally not sufficient to protect the local population. Landscape Project maps address these issues by displaying habitat patches that animals use and that are required to support local populations, rather than pinpointing exact locations of the most sensitive wildlife sites or simply protecting points where species happened to be observed at one point in time.

Figure VIII-7. Endangered Habitat Map shows 5 rankings. These are defined as follows:

Rank 1 is assigned to species specific habitat patches that meet habitat specific suitability requirements such as minimum size or core area criteria for endangered, threatened or special concern wildlife species, but that do not intersect with any confirmed occurrences of such

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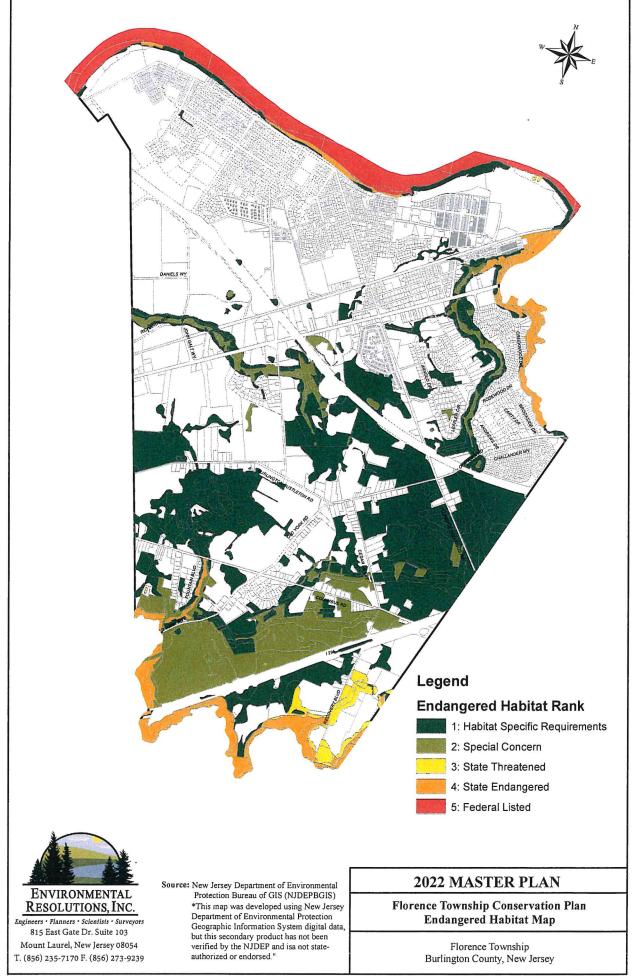


Figure VIII-7. Endangered Habitat Map

species. Rank 1 habitat patches without documented occurrences are not necessarily absent of imperiled or special concern species. Patches with a lack of documented occurrences may not have been systematically surveyed. Thus, the Rank 1 designation is used for planning purposes, such as targeting areas for future wildlife surveys.

Rank 2 is assigned to species specific habitat patches containing one or more occurrences of species considered to be species of special concern.

Rank 3 is assigned to species specific patches containing one or more occurrences of State threatened species.

Rank 4 is assigned to species specific habitat patches with one or more occurrences of State endangered species.

Rank 5 is assigned to species specific habitat patches containing one or more occurrences of wildlife listed as endangered and threatened pursuant to the Federal Endangered Species Act of 1973.

8. USDA Soil Types

The United States Department of Agriculture (USDA) soils types are shown on *Figure VIII-8*. *USDA Soils Map*. Soil maps are important for development and planning purposes to provide a preliminary indication of potential site issues or as an indication of a site acceptable for development, farmland or other use.

The Township includes a number of soil types that are associated with wetlands and wet conditions. These are typically referred to as hydric soils and include the following:

Ao-Alluvial Land

Sn-Shrewsbury Fine Sand

At-Atsion Sand

Mt-Marsh, Tidal

Cm-Colemantown Loam

Soils that indicate a disturbed condition and are not the original soil type include:

Pt-Pits

Ut-Urban Land, Clayey

Ug-Urban Land, Sandy

Mg-Made Land, Sanitary Fill

Soils that are typically good for development, prime farmland, and parks and open space include the following Class I soil types.

CnA-Collington Fine Sandy Loam

SgA-Sassafras Fine Sandy Loam

FfA-Freehold Fine Sandy Loam

ShA-Sassafras Fine Sandy Loam, Clayey Substratum

In addition to Class I Soil Types, Class II and II soil types are acceptable for development and farmland but they may be susceptible to erosion, wet conditions or shallow root zones. Soils

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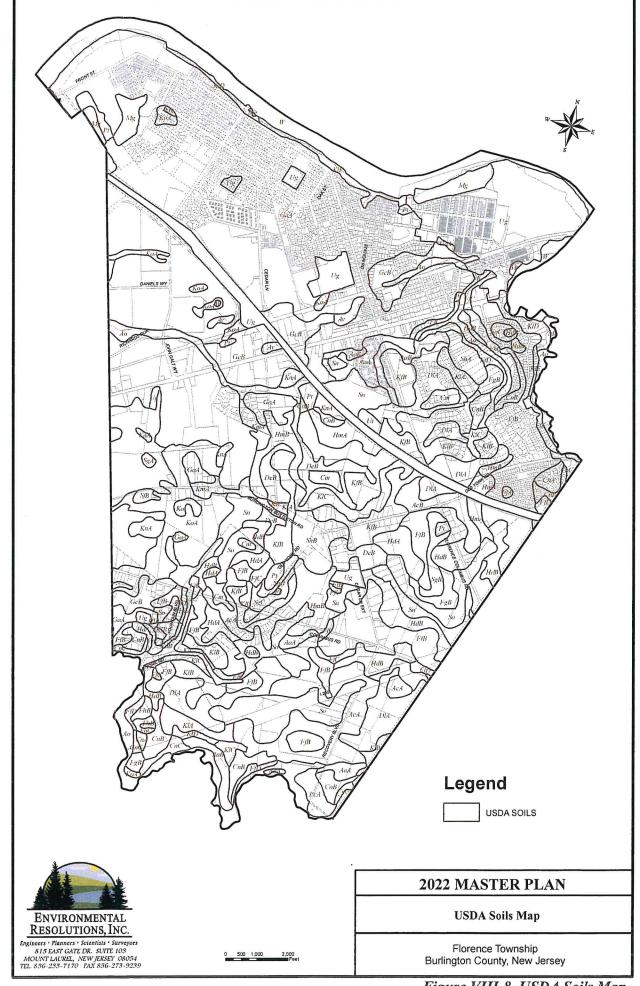


Figure VIII-8. USDA Soils Map

that are Class IV to VIII typically have severe limitations and susceptibility to erosion, wet conditions, fertility or other factors.

Soils types that have steep slopes in the Township include:

CnC-Collington Fine Sandy Loam, 5 to 10 percent slopes

FfD-Freehold Fine Sandy Loam, 10 to 15 percent slopes

FfE-Freehold Fine Sandy Loam, 15 to 25 percent slopes

KlD-Keyport Loam, 10 to 15 percent slopes

KIE-Keyport Loam, 15 to 25 percent slopes

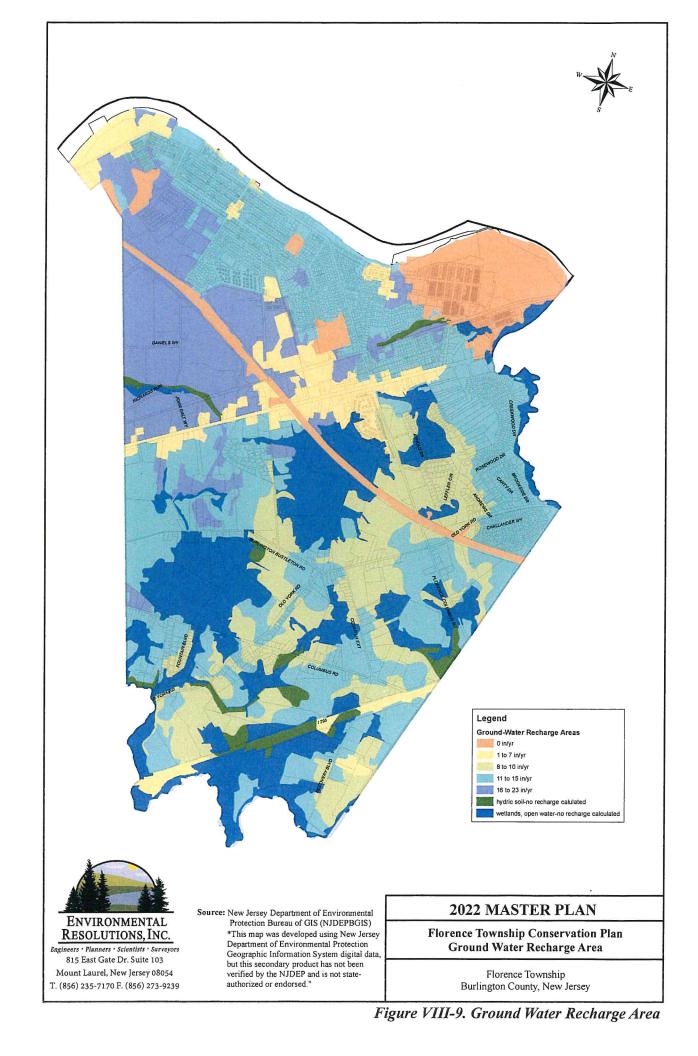
Knowing the soil type of properties in the Township is a key planning and conservation tool.

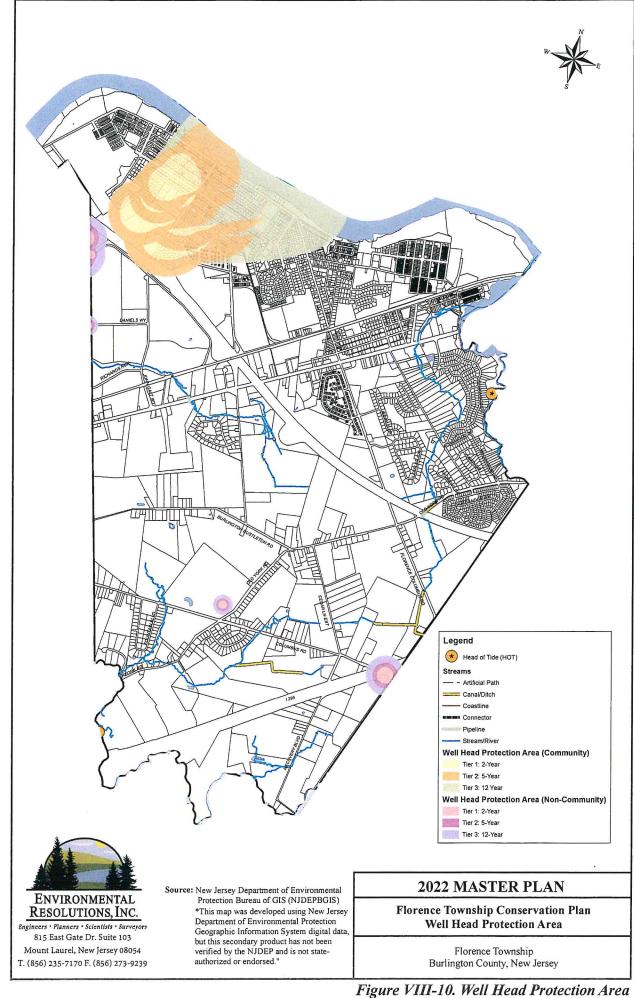
9. Ground Water Recharge Areas

Figure VIII-9. Ground Water Recharge Area map shows areas in the Township that provide limited recharge to ground water and areas where recharge occurs at a more rapid pace. The Figure also shows hydric soils and wetlands and open water where recharge has not been calculated. Preserving and conserving area where ground water recharge occurs is important because the loss of recharge can adversely impact the health of streams and wetlands and the yield of water supply wells.

10. Well Head Protection Areas

Figure VIII-10. Well Head Protection Area map shows areas within the Township where Community and Non-Community wells are located and the horizontal extent of groundwater captured by a well pumping at a specific rate over two-, five-, and twelve-year periods of time. The delineation of well head protection areas is the first step in defining the sources of water to supply wells. Within these areas, potential contamination can be assessed and appropriate monitoring can be performed. Potentially polluting land use activities should be prohibited or restricted in source protection zones, with decreasing restrictions from Tier 1 to Tier 3. Outside these zones, polluting activities are also often restricted, or should be restricted, for reasons of water resources protection (both groundwater and surface water) or general environmental and human health protection. The Tier 1 wellhead protection area comprises the area immediately surrounding a pumping well. The purpose of this zone is to protect the well from any type of direct impact, mechanical damage, or contamination. The inner protection zone, Tier 2, is primarily designed to prevent drinking water contamination with fecal and pathogenic microorganisms. The outer protection zone, Tier 3, is designed to prevent chronic contamination with persistent and mobile contaminants and ensure that, in the event of an accidental contaminant release, sufficient time and space are available to ward off any hazards to the drinking water.





11. Earthquake and Landslide Map

Figure VIII-11. Earthquake and Landslide Map indicates an Earthquake Event of Magnitude 1.31-2.30 occurred in Florence Township. The reported earthquake occurred in the vicinity of Roebling on September 15, 1986. The earthquake was reported to be magnitude 1.90.

Figure VIII-11 also shows Landslides in the Township. Four landslides in the form of Slumps occurred along the steep banks of the Delaware Riverfront. Two of the Slumps appear to have occurred in 2017 and two are of an unknown date on the NJ GeoWeb website. All four occurrences were due to heavy rains.

12. Bedrock Aquifer and Bedrock Geology

Figure VIII-12. Bedrock Geology Map and Figure VIII-13. Bedrock Aquifer Map show geologic formations in the Township. The Magothy Formation is typically associated with the Raritan Formation and in the outcrop areas, they are similar. The formations contain the most important and productive aquifers in Burlington County and most of the industries adjacent to the Delaware River and most of the public water supplies are from these formations. The Potomac Formation comprises the base of the Potomac-Raritan-Magothy (PRM) aquifer, which is an important public water resource of the New Jersey Coastal Plain. The Merchantville Formation and Woodbury Clay function as confining beds separating the aquifer of the Raritan and Magothy Formations from that of the overlying Englishtown Formation. Recharge to the Raritan and Magothy Formations from the Englishtown Formation occurs as a result of vertical leakage through the two formations.

13. Prime Farmlands and Farmland Protection

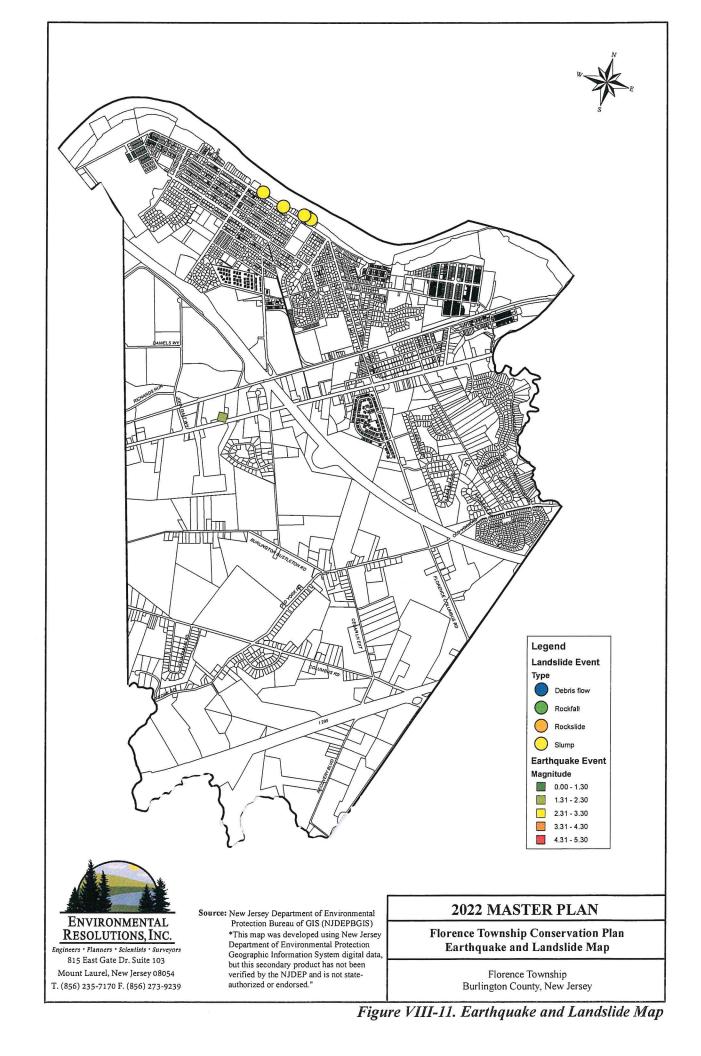
Chapter XII. Farmland Preservation Plan Element of this Master Plan discusses and maps Burlington County and Florence Township's success in preserving farmlands. *Figure VIII-14*. *Farmland Preservation Map* shows the farmlands preserved and targeted for preservation.

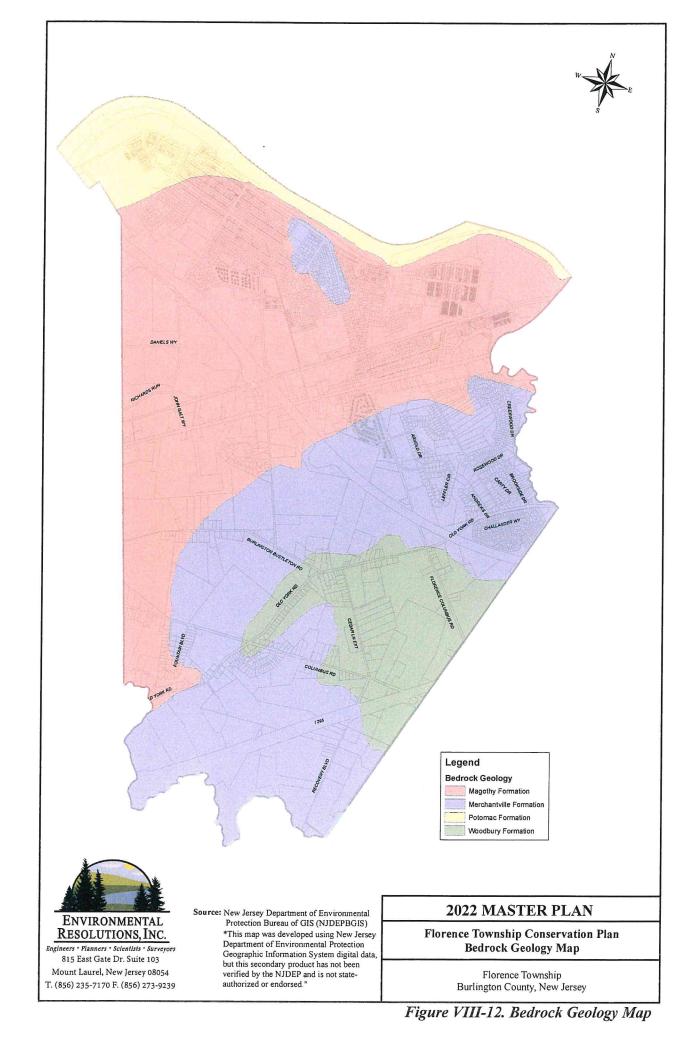
14. Historic District and Historic Site Preservation

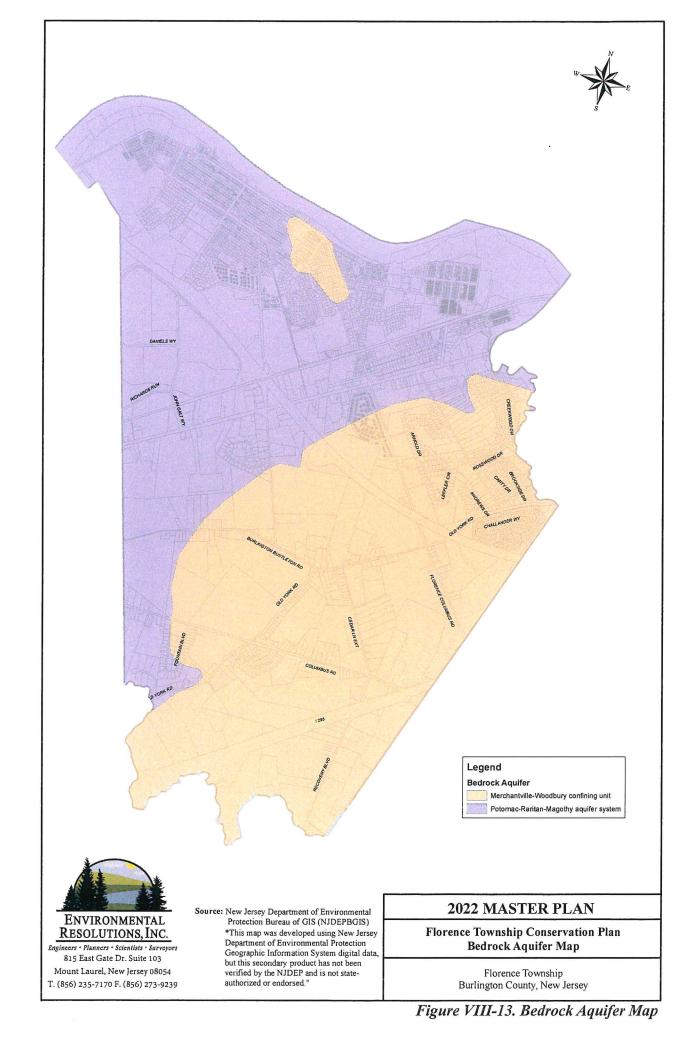
Chapter IX. Historic Preservation Plan Element of this Master Plan discusses and maps the Township's Historic District. *Figure VIII-15. Historic District Map* shows the Historic District. Preservation of Historic Districts, individual historic sites and archaeological sites may be part of a Conservation policy and strategy and the Township.

15. Recreation and Open Space

Chapter VII. Recreation Plan Element of this Master Plan presents and discusses an inventory of existing parks, playgrounds, open space and recreation sites in the Township. The plan also discusses proposed park improvements and programs and finally, existing and proposed walkways and trails through the Township are discussed and presented, along with







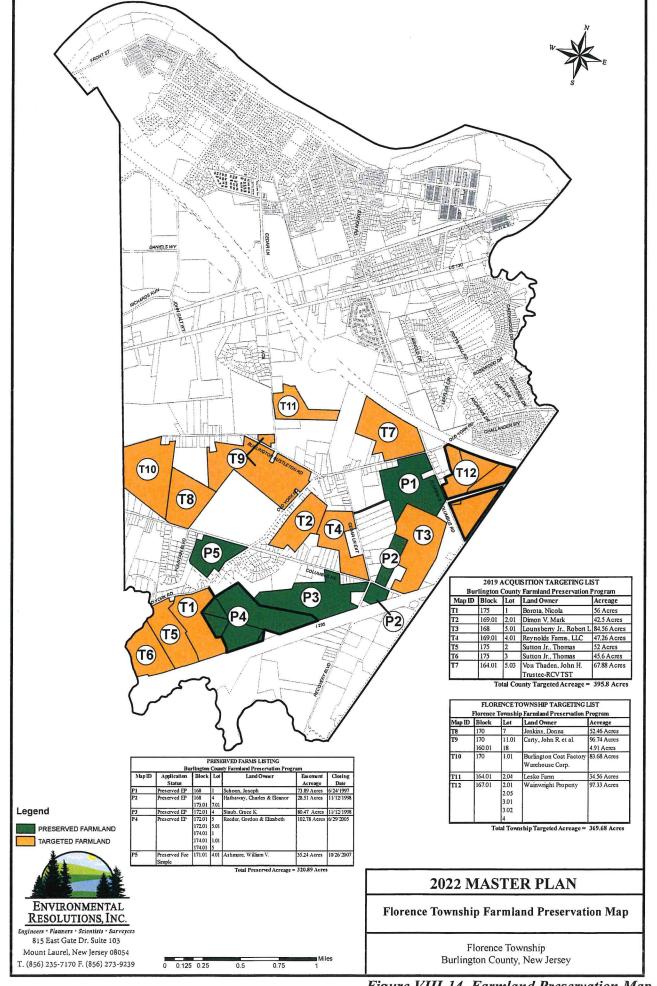


Figure VIII-14. Farmland Preservation Map

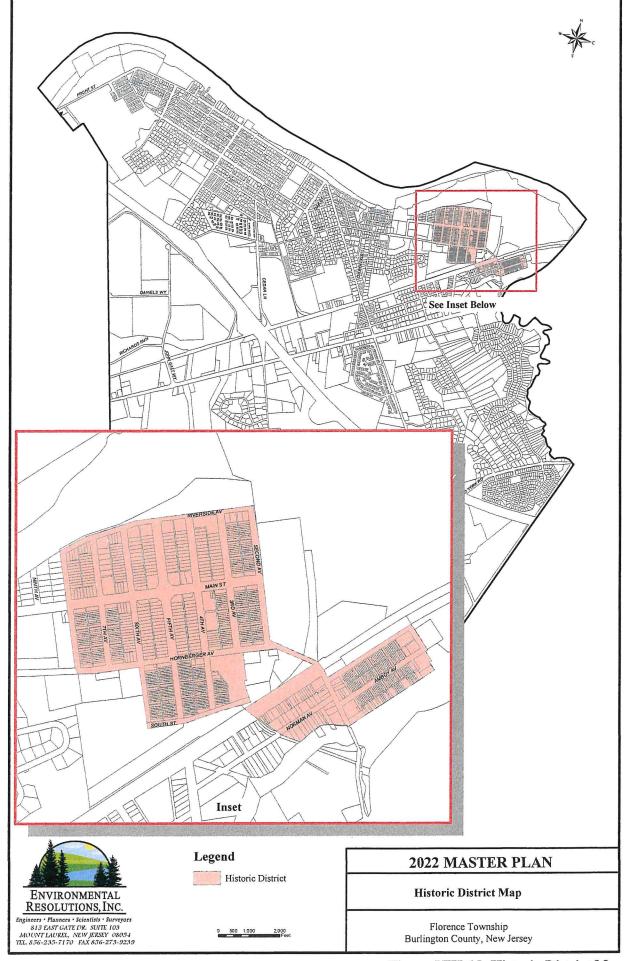


Figure VIII-15. Historic District Map

park locations. These areas are shown on Figure VIII-16. Parks, Playgrounds, Open Space and Recreation Sites.

16. Recycling Plan

Chapter XI of this Master Plan contains the Recycling Plan which provides information on conservation efforts by the County and Florence Township in the form of sustainability and minimizing waste and reducing waste through an active recycling program.

17. State and Federal Oversight of Projects in Sensitive Areas

The Environmental Protection Agency (EPA) and the U.S. Fish and Wildlife Service frequently have oversight or provide comments and recommendations on major projects that affect environmentally sensitive areas. Their comments are in addition to local, state, and/or county reviews. So many times there are other agencies that are the "watch-dogs" to insure sensitive areas are protected and preserved. However, many resources outside of the jurisdiction of State and Federal agencies may still be lost which is why a Conservation Element to the Master Plan is important.

C. Township Conservation Efforts

Florence Township's goal of protecting its natural environment, including farmlands and open space is documented in the Farmland Preservation Plan Element and Recreation Plan Element of this Master Plan. The Township has actively protected, preserved, maintained or replaced its trees and forests as evidenced by the following actions it has taken over the years:

- Participating in the Tree City USA Program since 1999.
- Maintaining an Arbor Day program with tree plantings and seedling giveaways for the four elementary schools.
- Updating and revising tree ordinances to assist the community in protecting trees and woodlands.
- Supporting an active Community Garden Group.
- Appointing and supporting a Shade Tree Commission.
- Preparing a Community Forestry Management Plan, the most recent Plan for 2016-2020 which is currently under review to be updated.
- Requiring Shade Tree approval for removal of trees within 15' of the curb and providing recommendations for tree replacement where trees are to be replaced.

Other Township actions that are associated with conservation include:

- Adopting Ordinance §91-97 Preservation of Natural Resources.
- Adopting Ordinance §91-98 Conservation Easements.
- Adopting Ordinance §91-102 to 108 requiring Environmental Impact Statements for Major Subdivisions and Site Plans.
- Adopting Ordinance §91-91-124 Recycling Containment Areas.

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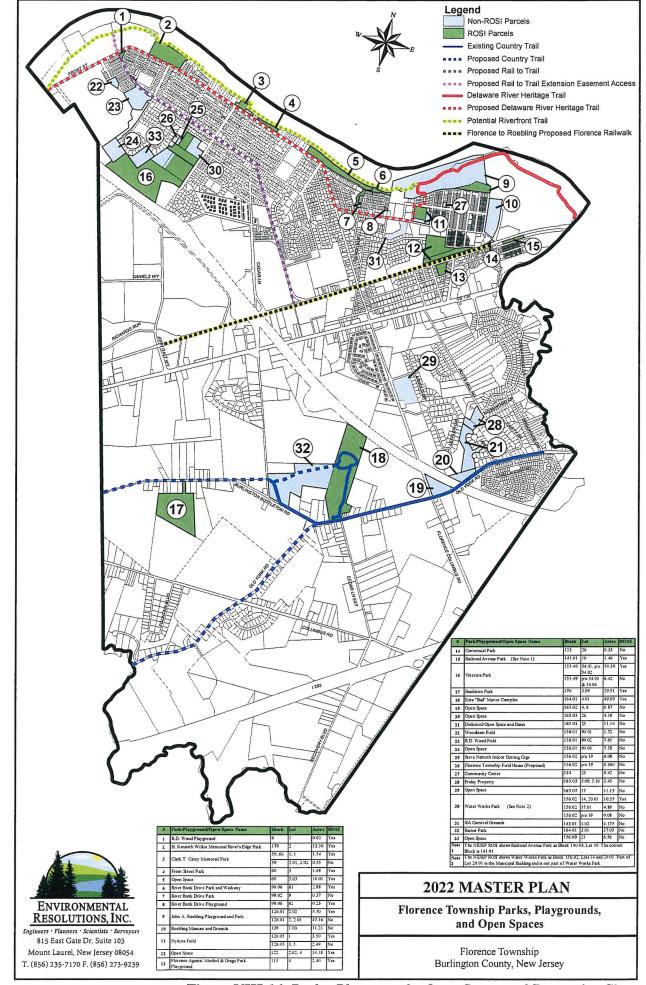


Figure VIII-16. Parks, Playgrounds, Open Space and Recreation Sites

- Adopting Ordinance §91-180 permitting a cluster option in the R-Low Density Residential District.
- Adopting Article XXXVIII Historic District Ordinance §91-260-276.
- Adopting Article XLVI Renewable Energy Ordinance §91-317-326.
- Adopting Ordinance No. 2020-05, Ordinance to Amend Section 91-75 of the Land Development Ordinance Entitled "Drainage Requirements and Stormwater Management" February 3, 2021.

D. Conservation Plan Recommendations

To facilitate conservation in Florence Township, this Conservation Plan Element recommends the following additional policies and strategies be taken:

- Review and possibly amend the Township's landscape design standards to encourage
 the use of plants native to New Jersey, or in the alternative, well-adapted noninvasive species to reduce the need for water and chemical applications.
- Adopt an Outdoor Water Landscape Conservation Ordinance placing restrictions on lawn water with a hose, hose-end sprinkler, and irrigation. Instead, use of drip irrigation should be encouraged.
- Adopt a Wellhead Protection Ordinance to protect the public health, safety and welfare through the regulation of land use and the storage, handling, use and/or production of hazardous substances and hazardous wastes within areas of land surrounding each public and non-public well.
- Establish a comprehensive greenway system linking public open space and recreational sites with community facilities.
- Recommend landscaping standards that provide buildings with maximum solar access, shading, and wind protection.
- Develop a woodland conservation plan that is required as part of any application for development where critical forest resources have been identified.
- Establish a reforestation plan requirement for forest vegetation lost through development to enhance habitat, promote recharge and reduce surface runoff, erosion and flooding.
- Provide public education directed at water conservation and preventing the discharge of toxic and hazardous pollutants to groundwater.